

REMARKS

Claims 1-20 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

DRAWINGS

The drawings stand objected to for certain informalities. Applicant's representative has attached a single revised drawing sheet for the Examiner's approval. In the revised drawings Figures 1A and 1B have been amended to label boxes 36 as "controller." It is believed that with this amendment, the present objection is rendered moot. Accordingly, Applicant's representative respectfully request that the Examiner withdraw the instant objection.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dixon (U.S. Pat. No. 6,023,242). This rejection is respectfully traversed.

It is respectfully submitted that claims 1-20 are novel, non-obvious and patentable over the prior art of record. The present invention uses a 1-dimensional electronically scanned phased array antenna that scans along a single scan axis and is attached to a tilt plate that tilts about a single tilt axis to communicate with a satellite communication system. Referring now to Claim 1, Claim 1 calls for "a tilt plate . . . capable of being tilted relative to the base; and a 1-dimensional electronically scanned phased array antenna that scans along a single scan axis, the array antenna being attached to the tilt plate so that the array antenna tilts with the tilting of the tilt plate." Referring now to Claim 14, Claim 14 is a method of using such a user terminal antenna

and calls for "orienting the user terminal antenna so that the scan axis of the array antenna is generally aligned with orbits of the plurality of satellites in the plurality of orbital planes." Thus, in Claims 1 and 14 the phased array antenna with a single scan axis is attached a tilt plate that tilts about a single tilt axis. It is respectfully submitted that the Dixon reference does not disclose, teach, suggest or provide motivation to make or use a terrestrial user terminal antenna as called for in Claims 1 and 14.

Rather, the Dixon reference discloses and teaches an antenna arrangement 204 that includes a phased array antenna 301 that allows the direction of the antenna beam to be altered rapidly with no mechanical movement of the antenna, the beam in effect being steered through the principle of wave interference. See column 10, lines 12-27 of the Dixon reference. In order to determine where to steer the beam, the location and orientation of the antenna arrangement 204 is determined. The location is determined by the use of a navigational satellite receiver 304 that calculates the position of the antenna arrangement 204 in response to receiving positional data from satellites, such as GPS satellites. The orientation is ascertained by the determination of an elevation and azimuth angles of the array antenna 301 which can be accomplished through the use of such things as an electronic compass, electronic spirit levels, laser gyroscope or a fiber optic gyroscope. See column 10, lines 37-54 of the Dixon reference. With the location and orientation of the array antenna 301 determined, the appropriate antenna beam steering is then performed. Steering the beam comprises providing each radiating element with a microwave signal of equal amplitude, but wherein the relative phase of the signals is weighted electronically across the face of the array. See Column 11, lines 20-24 of the Dixon reference. With the antenna beam being electronically


steered, the Dixon reference does not need or disclose the array antenna 301 being attached to a tilt plate and tilting with the tilt plate. In fact, the Dixon reference teaches away from mechanical movement of the array antenna 301. "Thus the advantage of using a phased array antenna is that no mechanical movement is required and so the amount of power consumed is reduced as compared with a mechanically adjustable automatically steered antenna." Column 11, lines 24-27. Therefore, when using a phased array antenna disclosed in the Dixon reference, the antenna radiating surface itself is not required to be mechanically repositioned, but rather the direction of the radiation beam is modified in response to feeding each radiating element of the antenna calculated weighted phases of the transmitted signals so as to electronically determine the direction of the radiating beam. See Column 11, lines 55-61 of the Dixon reference. Accordingly, the Dixon reference discloses and teaches the determination of the orientation of the antenna arrangement 204 and using the phased array antenna to orient the antenna beam toward a desired satellite without the use of mechanical movement of the phased array antenna 302 or any type of tilt plate. Thus, it is respectfully submitted that the Dixon reference does not disclose, teach, suggest or provide motivation to have a scanned phased array antenna that scans along a single scan axis and attached to the tilt plate so the antenna tilts with the tilting of the tilt plate as called for in Claim 1. Additionally, it is respectfully submitted that the Dixon reference does not disclose, teach or suggest the orienting of the user terminal antenna into any specific orientation, much less so that the scan axis of the array antenna is generally aligned with the orbits of the plurality of satellites in a plurality of orbital planes, as called for in Claim 14. Thus, for at least these reasons it is respectfully

submitted that Claims 1 and 14 are novel and non-obvious and, thus, patentable over the prior art of record. Claims 2-13 all depend from Claim 1 and, therefore, for the reasons mentioned above in relation to Claim 1 are also allowable over the prior art of record. Claims 15-20 all depend from Claim 14 and, therefore, for the reasons stated above in reference to Claim 14, are also allowable over the prior art of record. Accordingly, it is respectfully requested that the instant rejection be withdrawn.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant's representative therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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